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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,937	08/09/2001	Kurudi H. Muralidhar	7287-000017	4932

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EXAMINER	
ZHEN, LI B	

ART UNIT	PAPER NUMBER
2194	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/925,937	MURALIDHAR ET AL.	
	Examiner	Art Unit	
	Li B. Zhen	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 20 are pending in the application.

Response to Arguments

2. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,615,088 to Myer et al. [hereinafter Myer, cited in the previous office action] in view of U.S. Patent Application Publication No. 2002/0120921 to Coburn et al. [hereinafter Coburn].

5. As to claim 1, Myer teaches the invention substantially including input/output (I/O) devices [a plurality of devices, appliances and/or equipment; col. 2, lines 52 – 67] connected to a network of an industrial control system [control area networks 30 and 31; col. 2, lines 52 - 67], comprising:

a first network [control area network 30; col. 3, lines 1 - 22];

a plurality of I/O devices connected to the first network [a plurality of devices, appliances and/or equipment; col. 2, lines 52 – 67]; and

a master computer [Master controller 36; col. 3, lines 1 – 21] coupled to the first network [Master controller 36 may also poll each device in control area network 30 periodically to monitor its status; col. 3, lines 1 - 22] and including control software [a specific interface object instance operable to communicate and operate with the at least one device; col. 1, lines 53 – 62] with an object oriented model [col. 5, lines 27 – 45] for defining one of attributes [characteristics of device number 260; col. 5, lines 46 – 67], parameters and operations of the I/O devices [interface object instance operable to communicate and operate with the at least one device; col. 1, lines 53 – 62] wherein said master computer adjusts said one of attributes, parameters, and operations in order to configure a first I/O device that is connected to said fist network [Installation software 100 defines a generic device interface object 102, which may be configured by device interface object configuration files 104 to instantiate objects 106-110 tailored to specific devices made by specific manufacturers; col. 5, lines 26 – 45] by creating a first I/O device object [instantiate objects 106-110; col. 5, lines 25 – 45], said master computer subsequently clones properties that include said one of attributes, parameters, and operations of said first I/O device in order to configure a second I/O device [If the configuration for the new device does exist, then the configuration file is compared with the configuration file information obtained from the new device....specific device interface object can be instantiated, as shown in block 138. Alternatively, the interface object instances may be generated when the configuration file is loaded in

block 128 or upon startup when all configuration files 104 are loaded into installation software 100 prior to bringing the new device on-line; col. 6, lines 29 – 49] that is subsequently connected to said first network [process by which the devices may be installed is sufficiently flexible to allow either the insertion of the hardware device first or the configuring of the device interface object first and then attach them to one another; col. 9, lines 19 – 32], by creating a second I/O device object that is a copy of the first I/O device object [loading a configuration file 160 of device number 111 made by company ABC causes an instance 162 of generic device interface object 102 that has knowledge of the specifics of that device to be generated; col. 5, lines 45 - 67]. Although Myer teaches the invention substantially, Meyer does not specifically disclose accepts user input to modify at least one of said attributes of the second I/O device object that are different for said second I/O device and said master computer sends the first and second device objects to the first and second I/O devices on the network respectively.

However, Coburn teaches a controller area network [plurality of networked components; p. 22, paragraph 0339] with I/O devices [control devices, control assemblies and control sequencing; p. 11, paragraph 0193] and controller software [A Control Assembly Component is a deployable control subsystem that exposes an interface (to Control System-wide tools) that is a composition of the following parts using a common object (or data) model and is easily configurable by setting properties; p. 90, paragraph 1310], creating a second I/O device object that is a copy of the first I/O device object [When a CA is instantiated, the specific CA instance is given a unique name which is then used thereafter to reference the specific CA instance and to identify

control system parameters corresponding to the instance; p. 14, paragraph 0241], and accepts user input to modify at least one of said attributes of the second I/O device object that are different for said second I/O device [Control Assembly Type is a reusable component containing a number of user selectable properties (or parameters). 1stclamps is a specific instance of the component for which the user will set the properties; p. 43, paragraph 0581 and p. 89, paragraph 1287], and said master computer sends the first and second device objects to the first and second I/O devices on the network respectively [ladder logic is downloaded to the PLC 472 for controlling the enterprise; p. 52, paragraph 0690].

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the features of user input to modify at least one of said attributes of the second I/O device object that are different for said second I/O device and said master computer sends the first and second device objects to the first and second I/O devices on the network respectively as taught by Coburn to the invention of Myer because this provides a system which streamlines the entire development process including defining an automated manufacturing line, developing programs to control the manufacturing mechanical, specifying and supporting human machine interfaces for the line, simulating line operation in a virtual environment prior to building the line and using the actual real world execution code to drive a virtual line in the virtual environment, debugging the control programs, and automatically providing schematic diagrams for a complete control system [p. 8, paragraph 0090 of Coburn].

6. As to claim 10, Myer as modified by Coburn teaches a system for cloning input/output (I/O) devices [a plurality of devices, appliances and/or equipment; col. 2, lines 52 – 67 of Meyer] connected to a network of an industrial control system [control area networks 30 and 31; col. 2, lines 52 – 67 of Meyer], comprising:

a first network [control area network 30; col. 3, lines 1 - 22 of Meyer];

a second network [control area network 31; col. 2, lines 53 - 67 of Meyer] coupled to the first network;

a first plurality of I/O devices connected to the first network [a plurality of devices, appliances and/or equipment; col. 2, lines 52 – 67 of Meyer];

a second plurality of I/O devices connected to the second network [col. 3, lines 21 – 38 of Meyer]; and

a master computer [Master controller 36; col. 3, lines 1 – 21 of Meyer] coupled to one of the first and second networks [Master controller 36 may also poll each device in control area network 30 periodically to monitor its status; col. 3, lines 1 - 22 of Meyer] and including control software [a specific interface object instance operable to communicate and operate with the at least one device; col. 1, lines 53 – 62 of Meyer] with an object oriented model [col. 5, lines 27 – 45 of Meyer] for defining one of attributes [characteristics of device number 260; col. 5, lines 46 – 67 of Meyer] and operations of at least one of the I/O devices on one of the first and second networks [interface object instance operable to communicate and operate with the at least one device; col. 1, lines 53 – 62 of Meyer], wherein the master computer adjusts said one of attributes, parameters and operations in order to configure a first I/O device that is

connected to one of said first and second networks [Installation software 100 defines a generic device interface object 102, which may be configured by device interface object configuration files 104 to instantiate objects 106-110 tailored to specific devices made by specific manufacturers; col. 5, lines 26 – 45 of Meyer] by creating a first I/O device object [instantiate objects 106-110; col. 5, lines 26 – 46 of Myer], master computer subsequently clones properties that include said one of attributes, parameters, and operations of said first I/O device in order to configure a second I/O device [If the configuration for the new device does exist, then the configuration file is compared with the configuration file information obtained from the new device....specific device interface object can be instantiated, as shown in block 138. Alternatively, the interface object instances may be generated when the configuration file is loaded in block 128 or upon startup when all configuration files 104 are loaded into installation software 100 prior to bringing the new device on-line; col. 6, lines 29 – 49 of Meyer] that is subsequently connected to the other of said first and second networks [process by which the devices may be installed is sufficiently flexible to allow either the insertion of the hardware device first or the configuring of the device interface object first and then attach them to one another; col. 9, lines 19 – 32 of Meyer], by creating a second I/O device object that is a copy of the first I/O device object [When a CA is instantiated, the specific CA instance is given a unique name which is then used thereafter to reference the specific CA instance and to identify control system parameters corresponding to the instance; p. 14, paragraph 0241 of Coburn], and accepts user input to modify at least one of said attributes of the second I/O device object that are different for said second

I/O device [Control Assembly Type is a reusable component containing a number of user selectable properties (or parameters). 1stclamps is a specific instance of the component for which the user will set the properties; p. 43, paragraph 0581 and p. 89, paragraph 1287 of Coburn], and said master computer sends the first and second device objects to the first and second I/O devices on the network respectively [ladder logic is downloaded to the PLC 472 for controlling the enterprise; p. 52, paragraph 0690]. As to the motivation for incorporating the features of Coburn to the invention of Myer, see the rejection to claim 1 above.

7. As to claim 2, Myer as modified by Coburn teaches the object oriented model [col. 5, lines 27 – 45 of Myer and p. 47, paragraph 0621 of Coburn] includes a hierarchical class structure [p. 11, paragraph 0193 of Coburn] with inheritance properties [p. 47, paragraph 0628 of Coburn].

8. As to claim 3, Myer as modified by Coburn teaches the hierarchical class structure includes a device class [p. 13, paragraph 0234 of Coburn].

9. As to claim 4, Myer as modified by Coburn teaches the device class includes a plurality of device types [p. 14, paragraph 0236 of Coburn].

10. As to claim 5, Myer as modified by Coburn teaches the object oriented model includes at least one class level hierarchically below the device class [p. 11, paragraph 0193 of Coburn].

11. As to claim 6, Myer as modified by Coburn teaches devices instantiated at the at least one class level inherit the one of the attributes, parameters and operations [p. 14, paragraph 0241 of Coburn] of the at least one class level and a device type of the device class from which the at least one class level depends [p. 11, paragraph 0192 of Coburn].

12. As to claim 7, Myer as modified by Coburn teaches the device types include at least one of analog and digital devices [p. 50, paragraph 0675 of Coburn].

13. As to claim 8, Myer teaches the control software includes a graphical user interface for interfacing the control software and cloning the I/O devices [control area network user interfaces (CAN UI/F) 35; col. 2, lines 52 - 67].

14. As to claim 9, Myer as modified by Coburn teaches the I/O devices include at least one of barcode readers, sensors, actuators [p. 57, paragraph 0717 of Coburn], and motor starters [p. 61, paragraph 0765 of Coburn].

15. As to claim 18, Myer as modified by Coburn teaches the first and second networks are connected by a gateway [col. 4, lines 9 – 28 of Myer and

16. p. 88, paragraph 1273 of Coburn].

17. As to claim 19, Myer teaches the first and second networks are different types of networks [col. 2, lines 52 – 67].

18. As to claims 11 – 17 and 20, these are rejected for the same reasons as claims 2 – 9 above.

CONTACT INFORMATION

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on 571-272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Li B. Zhen
Examiner
Art Unit 2194

LBZ

5/28/2007